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C04B28/04

104:114971p Lightweight cement moldings. Nakamura, Osamu; Tanaka, Toru (Kubota, Ltd.) Jpn. Kokai Tokkyo Koho JP 60,161,381 [85,161,381] (Cl. C04B38/08), 23 Aug 1985, Appl. 84/16,845, 30 Jan 1984; 5 pp. A cement mixt. (composed of cement, aggregates, and reinforcing fibers) 100 is mixed with polystyrene foam particles 0.1-10, water retaining agent (hydromodifier) 0.2-1.0, thermoplastic synthetic resin fibers 0.1-0.5 part, fine polymer particles 0.2-5 parts based on cement 100 parts, and a necessary amt. of water, extrusion molded, and steam cured at high temp. and under high pressure in an autoclave;  $\geq 1$  kind of hydrophobic monomer having a general formula  $\text{CH}_2\text{CRCOOR}^1$  ( $\text{R} = \text{H, Me, R}^1 = \text{C}_{1-8} \text{ alc. moiety}$ ), e.g., acrylic acid, or methacrylic acid ester, or styrene, butadiene, and vinylidene chloride 95-99, and hydrophilic polymerizable ethylenic unsatd. monomer (with soly. in an aq. alk. soln.  $\geq 5 \text{ wt.}\%$ ) having  $\geq 1$  functional group selected from carboxyl, hydroxy, amide, nitrile, and sulfonate 5-1 wt.% are polymd. to give the spherical fine polymer particles (particle size 0.1-1.0  $\mu$ ). The method produces freeze-resistant molded products without impairing extrusion formability, and permits the addn. of a large amt. of polystyrene foam particles without decreasing the mech. strength. The products are useful as building materials. Thus, Me methacrylate 692, Bu acrylate 80, 2-hydroxyethyl methacrylate 24, and acrylic acid 4 parts were added to an aq. soln. at 85° composed of deionized water 1200, and K persulfate 16 g, and kept at 85° for 1 h with stirring to give fine polymer particles (A). Portland cement (B) 50,  $\text{SiO}_2$  sand 37, asbestos 5, pulp 8, polypropylene fibers 0.2, polystyrene foam particles 2, Me cellulose 0.5, water 45 parts, and A (1 part per 100 parts of B) were mixed, extrusion molded in a die (20 x 200 mm), and cured at 180° under a pressure of 8 kg/cm<sup>2</sup> in an autoclave. The cured product had excellent moldability, nailing performance, and freezing and thawing test results, and had bending strength 91 kg/cm<sup>2</sup>, dry sp. gr. 1.00, and water absorption 42% vs. 70 kg/cm<sup>2</sup>, 0.98, and 45% for a cured product prepd. by the same procedure without A.